

comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

2. (Three Times Amended) An isolated DNA molecule comprising a DNA sequence encoding a dicamba-degrading oxygenase, wherein said dicamba-degrading oxygenase is selected from the group consisting of:

- a. a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;
- b. a fragment of SEQ ID NO:4 that has dicamba-degrading oxygenase activity; and
- c. a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

3. (Reiterated) The DNA molecule of Claim 2 comprising the nucleotide sequence of SEQ ID NO:3.

4. (Three Times Amended) A DNA construct comprising a DNA sequence encoding a dicamba-degrading oxygenase from a bacterium that degrades dicamba operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase has a subunit molecular mass of about 40kD, comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

5. (Three Times Amended) A DNA construct comprising a DNA sequence encoding a dicamba-degrading oxygenase operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase is selected from the group consisting of:

- a. a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;
- b. a fragment of SEQ ID NO:4 that has dicamba-degrading oxygenase activity; and
- c. a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

6. (Reiterated) The DNA construct of Claim 5 comprising the nucleotide sequence of SEQ ID NO:3.

3 7. (Twice Amended) The DNA construct of Claim 5 which is a vector.

21. (Three Times Amended) A transgenic host cell comprising DNA encoding a dicamba-degrading oxygenase, said DNA being operatively linked to expression control sequences;

wherein said dicamba-degrading oxygenase is selected from the group consisting of:

a. a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;

b. a fragment of SEQ ID NO:4 that has dicamba-degrading oxygenase activity; and

c. a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

22. (Reiterated) The transgenic host cell of Claim 21 wherein the DNA encodes a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

23. (Reiterated) The transgenic host cell of Claim 22 wherein the DNA comprises the nucleotide sequence of SEQ ID NO:3.

24. (Reiterated) The transgenic host cell of Claim 21 or 58 which is a plant cell.

36. (Three Times Amended) A transgenic plant or part of a plant comprising one or more cells comprising DNA encoding a dicamba-degrading oxygenase, said DNA being operatively linked to expression control sequences;

wherein said dicamba-degrading oxygenase is selected from the group consisting of:

a. a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4;

b. a fragment of SEQ ID NO:4 that has dicamba-degrading oxygenase activity; and

c. a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

37. (Reiterated) The transgenic plant or plant part of Claim 36 wherein the DNA encodes a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

38. (Reiterated) The transgenic plant or plant part of Claim 37 wherein the DNA comprises the nucleotide sequence of SEQ ID NO:3.

39. (Twice Amended) The transgenic plant or plant part of Claim 36 wherein the plant is a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase and the plant part is a part of a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase.

44. (Three Times Amended) A method of controlling weeds in a field containing a transgenic plant according to any one of Claims 36-39, 61-62 or 64-65 comprising applying an amount of dicamba to the field effective to control the weeds in the field.

47. (Three Times Amended) A method of selecting transformed plant cells comprising:

providing a population of plant cells;

transforming at least some of the plant cells in the population of plant cells with the DNA construct according to any one of Claims 4-7, 54-56 or 66; and

selecting the transformed plant cells by culturing the resulting population of plant cells in a culture medium containing dicamba at a concentration selected so that transformed plant cells proliferate and untransformed plant cells do not proliferate.

48. (Three Times Amended) A method of selecting transformed plants comprising:

providing a population of plants which comprises one or more plants comprising the DNA construct according to any one of Claims 4-7, 54-56 or 66; and

selecting transformed plants by applying an amount of dicamba to the population of plants selected so that transformed plants grow, and growth of untransformed plants is inhibited.

50. (Reiterated) The DNA molecule of Claim 1 comprising a DNA sequence encoding a *Pseudomonas* dicamba-degrading oxygenase.

51. (Reiterated) The DNA molecule of Claim 1 comprising a DNA sequence encoding a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

52. (Reiterated) The DNA molecule of Claim 2 comprising a DNA sequence encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

53. (Reiterated) The DNA molecule of Claim 2 comprising a DNA sequence encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

54. (Reiterated) The DNA construct of Claim 4 comprising a DNA sequence encoding a *Pseudomonas* dicamba-degrading oxygenase.

55. (Reiterated) The DNA construct of Claim 4 comprising a DNA sequence encoding a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

56. (Reiterated) The DNA construct of Claim 5 comprising a DNA sequence encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

57. (Reiterated) The DNA construct of Claim 5 comprising a DNA sequence encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

58. (Reiterated) The transgenic host cell of Claim 21 wherein the DNA encodes a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

59. (Once Amended) A transgenic host cell comprising DNA encoding a dicamba-degrading oxygenase from a bacterium that degrades dicamba, said DNA being operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase has a subunit molecular mass of about 40kD, comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

60. (Reiterated) The transgenic host cell of Claim 59 wherein the DNA encodes a *Pseudomonas* dicamba-degrading oxygenase.

61. (Reiterated) The transgenic host cell of Claim 59 wherein the DNA encodes a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

62. (Reiterated) The transgenic plant or plant part of Claim 36 wherein the DNA encodes a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4 and which has dicamba-degrading oxygenase activity.

63. (Once Amended) A transgenic plant or part of a plant comprising one or more cells comprising DNA encoding a dicamba-degrading oxygenase from a bacterium that degrades dicamba, said DNA being operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase has a subunit molecular mass of about 40kD, comprises an iron-sulfur cluster, and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

64. (Reiterated) The transgenic plant or plant part of Claim 63 wherein the DNA encodes a *Pseudomonas* dicamba-degrading oxygenase.

65. (Reiterated) The transgenic plant or plant part of Claim 63 wherein the DNA encodes a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

Please add the following new Claims 66-68.

66. (Added) The transgenic plant or plant part of Claim 63 wherein the plant is a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase and the plant part is a part of a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase.

67. (Added) The DNA construct of Claim 4 which is a vector.

68. (Added) The isolated DNA molecule of Claim 1, wherein said dicamba-degrading oxygenase has a K_m for dicamba of about 10 μ M and has a V_{max} of approximately 100-110 nmol/min/mg.